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Using Awareness Training to Decrease Nervous Habits in Public Speaking

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by

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Abstract

Research on components of habit reversal suggests that awareness training alone may be an effective and efficient intervention for reducing nervous habits. This study evaluated the effectiveness of awareness training for the reduction of three nervous habits that manifest in public speaking: filled pauses, tongue clicks, and inappropriate use of the word "like." Four university students delivered short speeches during baseline and assessment sessions. Awareness training consisted of response description and response detection. Awareness training resulted in meaningful reductions in target behaviors for all participants. Booster awareness training sessions were necessary for all participants to achieve further reductions in target behaviors. Generalization probes conducted in front of a small audience indicated that treatment effects generally maintained at low levels. Social validity scores indicated that the treatment was acceptable, and participants indicated not only decreased use of verbal fillers, but also improved overall public speaking ability post-treatment. Although awareness training was effective, it was not more efficient than simplified habit reversal.

Introduction

Habit reversal has been used in a variety of ways to decrease the occurrence of nervous habits, motor tics, and other behaviors (Allen, 1998; Azrin & Nunn, 1973; Azrin, Nunn, & Frantz, 1980; Azrin, Nunn, & Frantz-Renshaw, 1980; Azrin & Peterson, 1988, 1989, 1990; Miltenberger, Fuqua, & Woods, 1998; Nunn & Azrin, 1976; Woods, Miltenberger, & Lumley, 1996). Azrin and Nunn (1973) developed a habit reversal procedure that consisted of four components: awareness training, competing response practice, habit control motivation, and generalization training. In awareness training, the client is made aware of the target behavior and the situations in which it typically occurs. In competing response practice, the client is taught a specific behavior that is incompatible with the behavior targeted for reduction. Habit control motivation involves a discussion between the client and counselor about the inconvenience and suffering the target behavior causes. Social support is also incorporated in the motivation component. Generalization training involves instruction and practice controlling the target behavior in a natural setting or situation.

Habit reversal has been simplified to include fewer components than the original procedures and simplified versions have proven to be effective in the reduction of several habit behaviors (Azrin & Peterson, 1989; Miltenberger, Fuqua, & McKinley, 1985; Ollendick, 1981; Woods & Miltenberger, 1995). Research has demonstrated that awareness training and competing response training are the essential components of habit reversal in decreasing the occurrence of motor tics and nervous habits (Miltenberger et al., 1985, 1998; Woods et al.,

1996). Habit reversal is also an effective treatment for stuttering (Elliott, Miltenberger, Rapp, Long, & McDonald, 1998; Miltenberger, Wagaman, & Arndorfer, 1996; Wagaman, Miltenberger, & Arndorfer, 1993). Stuttering can be classified as a type of speech disfluency, which is characterized by a disruption in the flow of a speech or message (Myers, Bakker, St. Louis, & Raphael, 2012). The habit reversal procedures for stuttering have been adapted to include regulated breathing and relaxation training and simplified to include awareness training, competing response training, and social support (Miltenberger et al., 1996, 1998; Wagaman et al., 1993). These studies have demonstrated the effectiveness of a simplified habit reversal procedure for stuttering and provided promising results in the areas of long-term maintenance of treatment effects, high social validity ratings, and efficient treatment administration.

There is a small area of behavioral literature that suggests awareness training alone may be successful in reducing habit behaviors. The promising results from studies examining the effectiveness of awareness training on tics and nervous habits suggest that training a competing response may be an unnecessary component of the habit reversal procedure (Ladouceur, 1979; Nelson, Boykin, & Hayes, 1982; Ollendick, 1981; Wiskow & Klatt, 2013; Woods et al., 1996; Wright & Miltenberger, 1987). By determining the essential components of habit reversal, intervention facilitators can ensure that treatment of habit behaviors is both effective and efficient.

Good public speaking skills are an important aspect of several professional and academic occupations. For certain positions, being an adept public speaker is not only beneficial, but also essential to effectively communicate ideas to a group (Spohr, 2009). A common nervous habit that manifests in public speaking is the filled pause or filler. Pause fillers may consist of "ums," "uhs," inappropriately used "likes," "you knows," "I means," or other noises (Clark & Fox Tree,

2002; Henderson, 2007). According to Clark and Fox Tree (2002), these fillers may signal that the speaker is experiencing a temporary linguistic problem such as a momentary inability to emit a particular word or phrase. Fillers may also be emitted due to the speaker's motivation to avoid interruption of his or her speech, and therefore maintain control over the fluency of the speech. Filled pauses can make speakers appear unprepared and less knowledgeable about the topics on which they speak and diminish the credibility of their presentations (Bell, 2011; Henderson, 2007). Agarwal (2007) and Henderson (2007) suggest that silent pauses in the place of filled pauses convey clear, conscientious thought processes and more knowledge on the subject of the speech being given. Clark and Fox Tree (2002) maintain that filled pauses are not automatic in nature, because speakers have control over their occurrence. This notion of controllability highlights a similarity between verbal fillers and the habit behaviors targeted for reduction in habit reversal studies. The success of habit reversal in helping people control the occurrence of habit behaviors such as tics, nervous habits, and stuttering suggests that similar methodology could be beneficial in the treatment of nervous habits consisting of verbal fillers in public speaking.

Mancuso and Miltenberger (2014) evaluated the effect of a simplified habit reversal procedure for reducing filled pauses, tongue clicks, and inappropriately used "likes" in public speaking with university students. The simplified habit reversal procedure consisted of awareness training and competing response training. All six participants showed an immediate decrease in the occurrence of the target behaviors following the initial habit reversal session. The results indicate that the simplified habit reversal was an effective, efficient, and socially valid method of decreasing these nervous habits in public speaking. Interestingly, the authors reported that the participants greatly decreased the nervous habits during awareness training even before

the competing-response training component of habit reversal was implemented. Based on their observations, the authors suggested that awareness training may be a sufficient intervention on its own for decreasing undesirable nervous behaviors in public speaking. Considering the effectiveness of awareness training in research on habit behaviors and the findings reported by Mancuso and Miltenberger, the purpose of the current study is to evaluate the effectiveness of awareness training alone for the reduction of nervous habits in public speaking.

Method

Participants and Setting

Four students attending the University of South Florida participated in this study. Print and electronic recruitment flyers were distributed throughout the University of South Florida campus. Flyers contained a brief indication of the study's purpose and information on how to contact the principal investigator (PI). The PI communicated further details about the study to interested participants through email or phone conversations. The PI arranged individual meetings with potential participants to explain the nature of the study and assess their eligibility to participate. Potential participants completed an informed consent document. Potential participants' eligibility for inclusion was determined based on assessments of motivation to participate and frequency of occurrences of the behaviors targeted for reduction. The PI determined whether the potential participants met those criteria through an interview including questions about motivation to improve their public speaking skills and frequency of using verbal fillers when speaking in public. Potential participants also delivered a speech using the procedures described for baseline sessions. Participants were included in the study if the rate of their target behaviors amounted to at least two habits per min. Baseline and training sessions, post-intervention assessments, and generalization probes took place in a conference room located in the Department of Child and Family Studies at the University of South Florida Tampa campus. Participants received $1 for every session they attended.

Karen was a graduate student who expressed interest in improving her public speaking skills to give better presentations in her classes and reported frequent use of verbal fillers and speaking very quickly and quietly. Karen's target behaviors included filled pauses (specifically "um" and "uh") and inappropriate use of the word "like." Jasmine was an undergraduate student who expressed interest in improving her public speaking skills to better communicate with others and to improve communication in her classes and occupation. She reported occasional use of verbal fillers during speeches in addition to swaying, poor eye contact, and awkward hand gestures. Jasmine's target behaviors in this study included filled pauses ("um," "uh,"), "likes," and tongue clicks. Tyler was an undergraduate student who expressed interest in improving his public speaking skills for his career. He reported frequent use of verbal fillers, specifically the word "like," in addition to poor eye contact while speaking in public. Tyler's target behaviors included filled pauses ("um" and "uh") and "likes." Michelle was an undergraduate student who expressed interest in improving her public speaking skills in preparation to present research at national conferences. She reported frequent use of verbal fillers in addition to being "terrified" of speaking in public and desired help managing her "nervous energy" while presenting. Michelle's target behaviors included filled pauses ("um" and "uh") and "likes."

Target Behaviors

The behaviors of concern in this study were three nervous habits occurring during public speaking: filled pauses, tongue clicks, and inappropriate uses of the word "like."

Filled pauses. A filled pause was defined as any occurrence of a speech sound or word such as "um" or "uh" that has no semantic meaning in a sentence. Occurrences of filled pauses were scored upon the ending of each speech sound.

Tongue clicks. Tongue clicks were defined as the speaker emitting a click sound with his or her tongue that can be heard from at least 3 m away. Occurrences of tongue clicks were scored upon the discrete ending of each click sound. Only Jasmine engaged in tongue clicks.

Likes. Likes were defined as any occurrence of the word "like" in speech that does not follow correct grammatical, semantic, or syntactical form. This definition may include the speaker saying "like" before describing what someone said (e.g., "She was like, 'I need to leave.") or saying "like" before describing an approximation of a number, size, event, feeling, or cognition (e.g., "I had like, 20 homework assignments."). This definition does not include the speaker saying "like" to express interest (e.g., "I like ice cream.") or similarity between two items (e.g., "I am a lot like her mother.").

Data Collection and Interobserver Agreement

The PI collected data on the occurrences of target behaviors using video recordings of baseline and assessment sessions. Frequency within 15-s interval recording was used to collect data on the target behaviors during speeches. Frequency data were recorded separately for each type of target behavior. All frequency-within-interval data were converted to a rate (responses per min) measurement.

Trained research assistants (RAs) collected interobserver agreement (IOA) data on the target behaviors. RAs were trained to accurately and reliably identify occurrences of the target behaviors using baseline videos of the participants. IOA was calculated as frequency within interval agreement for at least 33% of sessions. Number of occurrences of the target behaviors recorded by two independent data collectors was compared in each interval. In each interval, the smaller number of recorded observations was divided by the larger number of recorded observations to yield a decimal agreement. Equal intervals were scored as 100%. The decimal

agreements of each interval were then added together and the resulting number was divided by the total number of intervals. The outcome was then multiplied by 100 to yield a percentage of agreement. Average IOA for all participants and phases was 93.8%. Agreement for Karen averaged 86.5% (range 80.7% - 92.2%). Agreement for Jasmine averaged 94% (range 92.2% - 95.9%). Agreement for Tyler averaged 99% (range 96.7% - 100%). Agreement for Michelle averaged 95.8% (range 90.7% - 100%).

Treatment Fidelity

Data on treatment fidelity were calculated for at least 33% of sessions in each phase of this study. RAs watched video-recorded sessions from each phase of the study and scored implementation steps as outlined in Appendices A and B (Mancuso & Miltenberger, 2014). The number of steps scored as "yes" was divided by the total number of implementation steps for each list, which yielded a percentage of treatment fidelity. Items scored as "not applicable" were not included in the total number of implementation steps. Treatment fidelity was 100% for all phases and participants.

Social Validity

Participants completed questionnaires that assessed the acceptability and efficiency of the intervention, satisfaction with their individual treatment outcomes, and perception of their individual public speaking skills (Appendices C and D; Mancuso & Miltenberger, 2014). Participants completed the questionnaires during baseline and following their final assessment.

A research assistant provided social validity data by completing a questionnaire about each speaker's public speaking skills based on one video from his or her baseline phase and one video from his or her post-AT assessment phase (Appendix E; Mancuso & Miltenberger, 2014). This RA was different from those who collected data on target behaviors and treatment fidelity

and was not informed of the phases in which the speeches occurred or the behaviors targeted for reduction.

Design

This study used a multiple baseline across participants design. Each participant had a baseline and post awareness-training (AT) assessment phase.

Procedure

Baseline. The sequence of events during baseline proceeded as follows: participants chose a topic on which to speak, used a short period of time to make notes, and delivered a 3- to 5-min speech. Participants were given a choice between two randomly selected topics on which to speak for 5 min. Research was not necessary to develop a speech on these topics, which were general subjects such as "My favorite holiday" and "My first job" (See Appendix F for full list of speech topics). The PI ensured that each participant was given different topics to choose from for each speech so that a topic was not repeated. The PI set a timer for 10 min and told the participant he or she could use the time to organize his or her speaking points and make notes or an outline if desired. The participants were allowed to use a notecard containing brief speaking notes (i.e., incomplete sentences or bullet points) during the speech. When the participant indicated that he or she was ready to begin the speech or when the timer went off, the PI instructed the participant to stand at the front of the room and deliver his or her speech. The PI sat at a table directly across from the participant. The PI and the participant were the only individuals present in the room for the speech delivery during this phase. The PI initiated recording on the video-recording device and provided a vocal count down to the beginning of the participant's speech (i.e. "3, 2, 1, start"). The PI set a timer for 5 min and pressed start at the same time she said, "start." The PI raised a blank, white sheet of paper when there was 1 min

remaining. The PI raised a blank, red sheet of paper when 5 min had elapsed and the timer went off. The video recording was stopped upon completion of the speech. The PI prompted the participant to continue speaking if he or she discontinued the speech for 15 s or if he or she attempted to terminate the speech before 3 min had elapsed. The PI maintained a natural affect and facial expressions during the speech and did not provide feedback about the speech or target behaviors to the participant.

Awareness training (AT). During this phase, the PI implemented the response description and response detection components of awareness training in the context of a speech delivered by the participant. Response description involved a discussion about each participant's behaviors that were targeted for reduction including their unique topographies and operational definitions. The PI then showed the participant a video from his or her recorded baseline sessions and identified occurrences of each target behavior with him or her. This step was response detection. The participant then chose a topic on which to speak and prepared it for 10 min as he or she did in baseline. During the speech delivery, the participant raised his or her right hand contingent on the occurrence of a target behavior. The PI also raised her right hand contingent on the occurrence of a target behavior throughout the beginning of the speech. After the first five behaviors, the PI only raised her hand to prompt the participant if he or she failed to detect an occurrence of a target behavior within 2 s of its occurrence. The participant delivered a speech on the same topic until 100% of target behaviors were accurately identified in one presentation or until 90% were identified across two presentations delivered sequentially. Awareness training was terminated upon meeting this criterion or after the participant exhibited little to no improvement in identifying his or her behaviors after three consecutive speeches. The number of

speeches performed during awareness training ranged from three to six. Awareness training sessions ranged from 30 min to 45 min in duration.

Post-AT assessment. The sequence of procedures for the post-AT assessments was the same as baseline.

Booster sessions. If a participant's nervous habits did not decrease by 80% compared to his or her average baseline level during the first post-AT assessment or if a participant's data indicated an increasing trend, he or she completed a booster-AT session. The procedure for the booster session was the same as awareness training. Following the booster session, the participant completed a post-AT assessment at least a day later. Booster sessions were implemented until the participant's data stabilized during post-AT assessments. In Jasmine's first post-AT assessment, she attempted to end the speech before 3 min had elapsed. Upon receiving the prompt to continue speaking, she engaged in a high frequency of verbal fillers, which increased the overall rate of habits per min for the session and did not reflect an 80% reduction from her baseline mean. Instead of participating in a booster session, she then completed a second post-AT assessment, which indicated an increasing trend in her data. Jasmine then completed a booster session following this second post-AT assessment. The implications of postponing the booster session are addressed in the discussion section.

Generalization probes. One generalization probe per participant was conducted in this study. Generalization probes occurred following the participant's final post-intervention assessment. Speech procedures were identical to those described in baseline; however, an audience of five individuals (i.e., the PI and four other individuals) was assembled for the speech delivery. The audience members varied in age and ethnicity. Identifying information of the participant was not revealed to the audience. The audience was not informed of any details about

the study such as target behaviors and assessment phases. The audience was instructed to refrain from providing feedback to the participant.

Results

The effects of awareness training on the habit behaviors of the four individuals are shown in Fig. 1. The rate of habit behaviors (responses per min) is illustrated across speech sessions. Following high levels of target behaviors in baseline, all four participants exhibited a decrease in target behaviors in post-AT assessments. To achieve further reduction in habit behaviors, three participants needed one booster-AT session and one participant needed two booster-AT sessions. Karen's habit behaviors in baseline averaged 12.9 /min and decreased to an average of 1.97 /min in post-AT assessment. Her final post-AT assessment point was 1.3 /min. Jasmine's habit behaviors in baseline averaged 7.05 /min and decreased to an average of 2.23 /min in post-AT assessment. Her final post-AT assessment point was .97 /min. Tyler's habit behaviors decreased from an average of 6.74 /min in baseline to an average of 1.56 /min in post-AT assessment. His final post-AT assessment point was .2 /min. Michelle's habit behaviors decreased from an average of 9.3 /min in baseline to an average of 1.7 /min in post-AT assessment. Her final post-AT assessment point was .3 /min. Generalization probe data remained well below baseline levels for all four participants, although slightly above the final post-AT data point for three participants (Karen = .9 /min, Jasmine = 2.3 /min, Tyler = 1.1 /min, Michelle = 1.7 /min).

In the self-report questionnaire about the participants' public speaking abilities and confidence, participants reported improved scores across all measures. The average scores for comfort level, overall speaking ability, confidence level, use of fillers, and anxiety level improved by 1.5 points or more (See Table 1). The questionnaire about the participants' public

speaking abilities completed by an external rater based on videos of speeches from baseline and post-AT assessment also indicated improvement from baseline to post-AT assessment across all measures (See Table 3). Use of fillers improved by 3 points, the most substantial improvement of all the items scored. Participants rated the awareness training procedures favorably (See Table 2). All participants found the intervention to be acceptable, likeable, easy to participate in, and effective in reducing their verbal fillers. One participant, Michelle, indicated that the intervention had many possible disadvantages; however, based on her other scores it is believed this was a mistake in scoring due to confusion with the reverse scoring of this item. Michelle also did not provide an answer about the difficulty of participation.

Discussion

The results of this study showed that awareness training reduced filled pauses in public speaking with further decreases after booster training sessions. All four participants exhibited a substantial decrease in their target behaviors in post-AT assessment sessions compared to their baseline levels with no overlap with baseline. All participants required at least one booster session to achieve a further reduction in their behaviors. Generalization of decreased rates of habit behaviors was also evident in generalization probes conducted in front of an audience. For Karen, the generalization probe was her lowest data point in post-AT assessment. For the other three participants, their generalization probes increased slightly from the final individual assessment, but were still substantially below their baseline levels. All participants indicated increased feelings of nervousness and anxiety prior to delivering their speech to the audience, which may approximate more natural conditions in which presentations typically occur. It can be speculated that this increase in anxiety contributed to the slight increase in the rate of habits for three participants. Future research might incorporate group speeches into assessment and intervention sessions to help participants not only decrease the filled pauses, but also the anxiety that might arise when speaking to a group.

Results from social validity measures in this study indicate that awareness training is an acceptable, likeable, and effective intervention based on participant self-report. All four participants also reported increased comfort, confidence, and improvement in overall public speaking ability in addition to reductions in anxiety and use of verbal fillers on the self-rating

scale. An external rater (blind to treatment phases) who viewed videos of the participants' speeches in baseline and post-AT assessments indicated that not only did the participants decrease their use of fillers substantially from baseline to intervention (with an improvement of 3 points on a 5-point scale), but they also improved in all other areas with increases ranging from .5 to 1.75. The largest improvements occurred in the following areas; not being out of breath (1.75), confidence (1.25), fluency (1.25), and use of appropriate movements (1.25). The external rater also indicated that all participants showed improvement in their nervousness (1.0), use of gestures (1.0), and overall public speaking ability (1) in post-AT assessment videos compared to their baseline performances. These behaviors were not targeted for reduction, but appeared to have improved during the course of treatment for verbal fillers. These findings contrast with those from Mancuso and Miltenberger (2014) in which external raters scored improvements only in the use of fillers from baseline to post-treatment.

To gain more insight into the function of awareness training and the possible mechanisms responsible for behavior change, the participants were asked why they thought the intervention was effective at reducing their use of verbal fillers. The three participants that responded spoke to the effectiveness of response description, particularly knowing which words they used as fillers, and response detection, watching themselves on video and raising their hands contingent on the behaviors, which helped them realize the extent to which they used verbal fillers. Tyler said that raising his hand each time he engaged in a filler prompted him to "take his time to think" about what he was going to say. Tyler's response suggests the action of raising his hand and thinking before speaking may have been akin to a competing response because the competing response for a filled pause is a silent pause (Mancuso & Miltenberger, 2014). It seems as if he may have engaged in a competing response without being told to do so. It was clear in

the post-AT assessment sessions that the participants were indeed aware of their behaviors. Upon engaging in a target behavior in a post-treatment speech, participants sometimes exhibited a novel response indicating that they were aware of the behavior that just occurred. These behaviors included eye rolls, sighing, and other gestures that indicated they caught themselves engaging in a behavior they were trying to avoid. In another example, Tyler raised his hand contingent upon his target behaviors in every post-AT assessment phase despite being told that raising his hand was only part of the training and not necessary in the assessments. Tyler also pointed at the PI following the first occurrence of a filled pause in his generalization probe speech, which appeared to function as a signal to the PI that he identified the behavior. It is reasonable to assume that engaging in the habit behaviors became aversive to the participants following awareness training, an explanation also offered by Woods et al. (1996). These observations suggest that one function of awareness training was to create an establishing operation that increased the aversiveness of engaging in these behaviors. As such, any behavior the participant engaged in to escape or avoid these behaviors (e.g., a silent pause) would be negatively reinforced (e.g., Wright & Miltenberger, 1987). Furthermore, the behaviors the participants exhibited upon the occurrence of a habit behavior may have functioned as a dissimilar competing response. Sharenow, Fuqua, and Miltenberger (1989) found that topographically dissimilar competing responses were as effective as similar competing responses (those that were physically incompatible with the behavior) for decreasing motor tics. More research is needed to elucidate the behavioral processes underlying the effectiveness of awareness training and the possible role of competing responses.

One limitation of the current study is that it contrived presentation opportunities and used impromptu speeches. University students are likely to give speeches on subjects related to their

courses of study rather than impromptu speeches, and are likely to utilize several opportunities to prepare and rehearse their speech before presenting it to an audience. Although the generalization probes allowed us to evaluate the effectiveness of the intervention for speeches presented to an audience, it is still unknown whether treatment effects would generalize to a naturalistic speech environment. However, one participant, Jasmine, reported that she received an A on a speech she presented in class following participation in the first awareness training session of this study. All four of the participants reported that they experienced increased awareness of their target behaviors in casual conversation in addition to others' use of filled pauses and nervous habits in casual conversation and presentations. Future research may evaluate the use of awareness training or habit reversal on conversational speaking behaviors. Future research may also investigate the effects of awareness training and/or simplified habit reversal on other nervous habits that occur during public speaking or on untargeted behaviors. Future research should also evaluate the function of awareness training to identify the behavioral mechanism responsible for decreasing undesirable behaviors and promoting of competing behaviors. Future research should evaluate the effects of awareness training over time and in different speaking contexts as this study did not evaluate long-term follow-up or performance in different contexts.

One interesting comparison between this study and Mancuso and Miltenberger (2014) is that booster sessions were required for all participants in this study to achieve further reductions in the habit behaviors commensurate with the reductions reported by Mancuso and Miltenberger. Repeated exposure to awareness training in booster sessions may have functioned to further establish the aversiveness of engaging in the target behaviors and reinforce alternative responses or competing responses that escaped or avoided those habit behaviors. Although the purpose of

evaluating awareness training alone was to determine whether AT was as effective as the combination of AT and CR and thus to see if the treatment could be made more efficient, the need for booster training sessions may suggest that awareness training alone is not more efficient. Mancuso and Miltenberger achieved immediate and substantial decreases in filled pauses in public speaking using one training session consisting of awareness training and competing response training. The current study required two to three sessions of awareness training per participant. Although we cannot say with confidence what would occur if booster sessions were not utilized in this study, the results from postponing the booster session with Jasmine suggest that the additional training was necessary for her to achieve a further decrease in her behaviors. It appears that without an active treatment component in place, Jasmine's habit behaviors would have continued to increase during post-AT assessments; time would not have a natural effect on behavior. However, it is unknown if the other participants or speakers would experience the same effect or lack thereof from the omission of booster sessions.

Based on the effects demonstrated in Mancuso and Miltenberger compared to this study, we can conclude that the time and effort needed to train a competing response is minimal enough to warrant inclusion of the competing response component in the training process; no time is saved by excluding competing response training. However, this study still adds value to the literature on habit reversal and awareness training by showing that awareness training alone is an effective, albeit not more efficient, intervention for these participants. More research is needed to establish the robustness of this finding. In addition, more research would be valuable identifying the behavioral mechanism responsible for the effectiveness of awareness training.

Tables and Figures

Table 1

Mean (Range) and Change in Score for Each Item on the Social Validity Scale: Participant's Self-Rating of Public Speaking Abilities and Confidence

Item	BL		Post-AT Assessment		Δ
Comfort Level	2	(1-3)	3.5	(2-5)	1.5
Overall Ability	1.75	(1-2)	3.75	(3-5)	2
Confidence Level	1.75	(1-3)	3.5	(2-5)	1.75
Use of Fillers	2.0	(1-3)	4.0		2
Anxiety Level	1.0	(1-1)	3.0	(2-4)	2

Note. BL = baseline. AT = awareness training. Δ = change in score.

Table 2

Mean and Range for Each Item on the Social Validity Scale: Awareness Training

Item	M	Range
Acceptability	5	
Willingness to Participate	5	
Possible Disadvantages	4	1-5
Difficulty Participating	5	
Liked the Treatment	4.75	4-5
Thought It Was Effective	5	

Table 3

Mean (Range) and Change in Score for Each Item on the Social Validity Scale: Public Speaking Abilities (External Rater)

Item	BL	Post-AT Assessment	Δ
Speaker Appeared Comfortable	2.25 (2-3)	2.75 (2-3)	.5
Voice Projection	2.75 (2-4)	3.5 (2-4)	.75
Speaking Rate	2.5 (2-4)	3.25 (3-4)	.75
Eye Contact	2.75 (2-4)	3 (2-4)	.25
Speech was Fluent	2.25 (1-3)	3.5 (3-4)	1.25
Speaker Appeared Nervous	2	3	1
Use of Movements	2	3.25 (2-5)	1.25
The Speaker was Out of Breath	2.5 (1-4)	4.25 (4-5)	1.75
Use of Gestures	2.5 (2-3)	3.5 (3-4)	1
Use of Fillers	1.25 (1-2)	4.25 (4-5)	3
Speaker's Confidence	2	3.25 (3-4)	1.25
Speaker's Overall Ability	2.25 (2-3)	3.25 (3-4)	1

Note. BL = baseline. AT = awareness training. Δ = change in score.

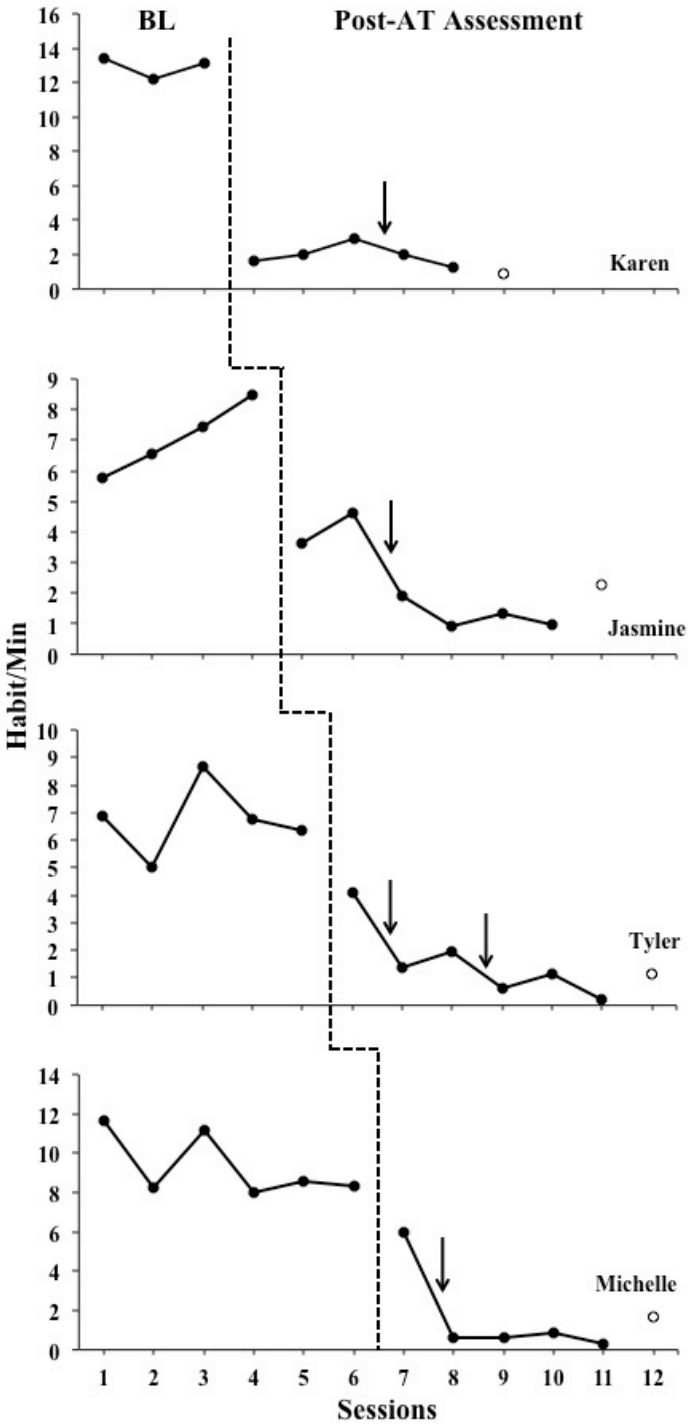

Figure 1. Rate (responses per min) of public speaking habit behaviors for four participants across sessions. Arrows indicate where booster-AT sessions occurred. Open circles represent generalization probes.

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Appendix A:

Implementation Fidelity Checklist: Baseline and Assessment

Participant: _____ **Session Number:** _____

1. Was the participant given a choice between two topics?	Yes No N/A
2. Was the participant given 10 min to prepare the speech?	Yes No N/A
3. Were writing utensils and paper provided?	Yes No N/A
4. Did the PI raise the white 8 ½ by 11 inch piece of paper after 4 min had elapsed?	Yes No N/A
5. Did the PI raise the red 8 ½ by 11 inch piece of paper after 5 min had elapsed?	Yes No N/A
6. If the participant stopped speaking for more than 15 s or attempted to end his or her speech before 3 min had elapsed did the PI prompt the participant to continue?	Yes No N/A
7. Was the speech at least 3 min in length?	Yes No N/A

Appendix B:

Treatment Fidelity Checklist: Awareness Training

Participant: _____

1. Did the participant and PI discuss the topography of the target behavior?	Yes No N/A
2. Did the participant practice identifying the target behaviors in a video clip before giving a speech?	Yes No N/A
3. Was the participant given a choice between two topics?	Yes No N/A
4. Was the participant given 10 min to prepare the speech?	Yes No N/A
5. Were writing utensils and paper provided?	Yes No N/A
6. Did the PI raise her hand each time the participant engaged in the target behavior in the beginning of the speech/session and then raise her hand to prompt the participant if he or she failed to?	Yes No N/A
7. Did the PI raise the white 8 ½ by 11 inch piece of paper after 4 min had elapsed?	Yes No N/A
8. Did the PI raise the red 8 ½ by 11 inch piece of paper after 5 min had elapsed?	Yes No N/A
9. If the participant stopped speaking for more than 15 s or attempted to end his or her speech before 3 min had elapsed did the PI prompt the participant to continue?	Yes No N/A
10. Was each speech at least 3 min in length?	Yes No N/A
11. Did the participant identify 100% of occurrences of the target behavior in one	Yes No N/A

speech or 90% across 2 speeches before awareness training ended? *Or did the participant show little to no improvement in identifying the target behaviors across at least 3 speeches before awareness training ended?	

Appendix C:

Social Validity Scale: Participant's Self-Rating Public Speaking Abilities and Confidence

Participant: _____ **Session Number: _____**

Please score each item by circling the number that best indicates how you feel about public speaking.

1. How comfortable are you when engaging in public speaking?

1	2	3	4	5
Not comfortable		Somewhat comfortable		Very Comfortable

2. How would you rate your overall ability as a public speaker?

1	2	3	4	5
Poor		Average		Excellent

3. How confident do you feel when engaging in public speaking activities?

1	2	3	4	5
Not confident at all		Somewhat confident		Very confident

4. How often do you use fillers, such as um, ah or er, during public speaking?

1	2	3	4	5
Very often		Sometimes		Not at all

5. While public speaking, how anxious are you?

1	2	3	4	5
Very anxious		Somewhat anxious		Not anxious at all

Appendix D:

Social Validity Scale: Intervention

Participant: _____

Please score each item by circling the number that best indicates how you feel about the habit reversal intervention.

1. How acceptable was the intervention?

1	2	3	4	5
Not at all acceptable		Somewhat acceptable		Very acceptable

2. How willing were you to participate in the intervention?

1	2	3	4	5
Not at all willing		Somewhat willing		Very willing

3. To what extent do you think there might have been disadvantages in the intervention?

1	2	3	4	5
Many likely		Somewhat likely		None likely

4. How difficult was it to participate in the intervention procedures?

1	2	3	4	5
Very difficult		Somewhat difficult		Not difficult

5. How much did you like the intervention?

1	2	3	4	5
Do not like it at all		Neutral		Liked it very much

6. How effective was the intervention in terms of reducing your use of fillers or nervous mannerisms?

1	2	3	4	5
Not effective		Somewhat effective		Very effective

7. Why do you think the intervention was effective or ineffective at reducing your use of fillers? Write your response below

Appendix E:

Public Speaking Ability Rating Scale (External Rater)

Participant: _____ **Session Number: _____**

Please score each item by circling the number that best indicates how you feel about the speaker's public speaking ability based on the speech you just viewed.

1. The speaker appeared comfortable.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. The speaker's voice projection was acceptable.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. The speaker spoke at an appropriate rate.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. The speaker made eye contact with the audience.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. The speaker's speech was fluent.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. The speaker appeared nervous.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

7. The speaker's use of movements was appropriate.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. The speaker sounded out of breath.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

9. The speaker's use of gestures was appropriate.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

10. The speaker used fillers, such as um, ah or er.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

11. The speaker appeared confident.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

12. How would you rate the speaker's overall public speaking ability?

1	2	3	4	5
Poor		Average		Excellent

Appendix F:

General Speech Topics

My First Job

The College Experience

The Most Memorable Moment In My Life Was…

First Relationship

If I Could Be Born in Any Decade It Would Be…

If I Could Be Anyone I Would Be

My Dream Place to Live

If My Life Were a Musical

My Favorite Movie

My Favorite Vacation

What My Life Would Be Like If I Had Superpowers

If I Could Only Have One Food for the Rest of My Life, It Would Be…

A Time When Everything Went Wrong…

Favorite Holiday

If I Could Have Any Job I Wanted

If I Were An Animal

If I Could Speak Any Language

My Favorite Country

Dogs Vs. Cats

My Favorite Season or Time of Year

Ghosts I Would Like To Meet

My Favorite Band or Musician

If I Won The Lottery

My Home Town

Gay Marriage

A Hobby or Pastime

Appendix G:

IRB Approval

USF
UNIVERSITY OF
SOUTH FLORIDA

RESEARCH INTEGRITY AND COMPLIANCE
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October 3, 2014

Claire Spieler
ABA-Applied Behavior Analysis
Tampa, FL 33612

RE: **Expedited Approval for Initial Review**
IRB#: Pro00019044
Title: Using Awareness Training to Decrease Nervous Habits in Public Speaking

Study Approval Period: 10/3/2014 to 10/3/2015

Dear Ms. Spieler:

On 10/3/2014, the Institutional Review Board (IRB) reviewed and **APPROVED** the above application and all documents outlined below.

Approved Item(s):
Protocol Document(s):
Using Awareness Training to Decrease Nervous Habits in Public Speaking

Consent/Assent Document(s)*:
Spieler Consent.pdf

*Please use only the official IRB stamped informed consent/assent document(s) found under the "Attachments" tab. Please note, these consent/assent document(s) are only valid during the approval period indicated at the top of the form(s).

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR 56.110. The research proposed in this study is categorized under the following expedited review category:

(6) Collection of data from voice, video, digital, or image recordings made for research purposes.

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval by an amendment.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

John Schinka, Ph.D., Chairperson
USF Institutional Review Board